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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,208	06/19/2001	Peter Charles Eastty	450110-4271.1	5224
20999	7590	12/17/2003	EXAMINER	
FROMMERM LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151			PENDLETON, BRIAN T	
		ART UNIT	PAPER NUMBER	
		2644	9	
DATE MAILED: 12/17/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/884,208	EASTTY ET AL.
	<b>Examiner</b> Brian T. Pendleton	<b>Art Unit</b> 2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 12 September 2003.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-6,8-14 and 16 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 4-6 is/are allowed.
- 6) Claim(s) 1-3 and 8-14 is/are rejected.
- 7) Claim(s) 16 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
  - a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                      | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8 . | 6) <input type="checkbox"/> Other: _____ .                                   |

## DETAILED ACTION

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-3, 8-14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg. Hellberg discloses an apparatus comprising sigma-delta modulator 410, XOR unit 5100 and code sequence generator 511. Hellberg does not disclose that the input and output inverters are used to invert alternate data bits. Nevertheless, it was suggested in Hellberg that the bit sequence B could be any selected combination of bits. Thus, alternating ones and zeros in code sequence generator 511 would have qualified as an appropriate sequence. Said sequence would invert alternate data bits through the XOR unit 5100. It would have been obvious to one of ordinary skill in the art at the time of invention to use alternating ones and zeros to prevent distortion.

Claims 3, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellsberg in view of Nishio et al. Hellberg discloses an apparatus comprising a delta-sigma modulated signal having its bits inverted by exclusive-OR unit 5100. It

would have been obvious at the time of invention to alternate the inversion of the bits, as discussed above. Hellberg does not disclose that the transmission medium is an standard digital recorder. However, digital recording of one-bit digital signals was well known in the art, as evidenced by Nishio et al. Nishio et al teach a transmission apparatus comprising a one-bit analog/digital converter and digital recorder 45. Since it was known to store such signals in a digital recorder, it was obvious to do so and it would have been obvious to one of ordinary skill in the art to use the teaching of Nishio et al in the invention described by Hellberg. Per claims 8 and 9, the code sequence generator 511 could be programmed with alternating data bits without undue experimentation.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg in view of Nishio et al, as applied to claim 9, in further view of Redfern & Co., GB 1 329 883. The combination of Hellberg and Nishio et al does not disclose a shift register as the control logic (code sequence generator). However, Redfern discloses a pseudo-random sequence that can be generated with a feedback shift register. It was advantageous to use a feedback shift register as it simplifies the circuitry of the apparatus. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the feedback shift register described by Redfern in the combination of Hellberg and Nishio et al.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg in view of Hamasaki et al. Hellberg discloses an apparatus comprising a delta-sigma modulated signal having alternate bits inverted by exclusive-OR unit 5100. Hellberg

does not disclose that a mute signal comprising successive data bits of the same type is outputted in the case of a transmission error. Nevertheless, such a mute signal was well known in the art at the time of invention, as evidenced by Hamasaki et al. The mute signal was an industry standard as admitted by Applicant. In addition, Hamasaki et al teach that a conventional D/A converter with an auto muting feature substitutes the output when a zero-level has been repeated a number of times in the digital signal. Therefore, in light of the abovementioned teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to output a stream of same type data bits in the case of a mute condition.

***Allowable Subject Matter***

Claims 4-6 allowed.

Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2644

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (703) 305-9509. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

  
Brian Tyrone Pendleton  
December 15, 2003

  
XU MEI  
PRIMARY EXAMINER